

The Stock of Automobiles in the United States

Its Size and Value in the Postwar Period

THIS article presents newly developed estimates of the stock of passenger cars in the United States measured in both units and values. The valuation of the stock is in terms of original (historical), current year, and constant dollar costs; the current year values are also estimated by utilizing used car market prices. Values are shown on both a "gross" and a "net" basis. The gross stock assumes no reduction in the value of assets however old or obsolete they may be so long as they remain in service. The net stock attempts to account for the decline in the value of assets during their lives. Because of the uncertainties as to the exact pattern of decline in auto values as they age, several alternative assumptions concerning depreciation rates have been used in the estimation of net stocks.

This project is one of several undertaken by the Office of Business Economics in connection with an interdepartmental study of economic growth in the United States. The ultimate goal of this particular project is to provide data on the stocks of all durable goods in the hands of consumers, with the expectation that such data will contribute to the analysis of consumer demand, economic growth, and national wealth. The present article presents estimates of total auto stocks; further study is needed to determine the distribution of ownership among consumers, business, and government.

Stocks of Cars in Units

The new series provide end-of-year estimates of the total number of passenger cars in (highway) use in the United States: Conceptually, cars in dealers' inventories are excluded. Although it was possible to exclude dealers' inventories of new cars from the estimates,

available data did not permit the complete elimination of dealers' inventories of used cars. Used cars in dealers' stocks are included to the extent that they are registered, but the overestimate on this account is probably small because dealers' total used car stocks are typically about 3 percent of the total stock of cars. Thus, in the measures presented here, a new car once marketed remains in the stock until it is scrapped or otherwise withdrawn from registration.

To derive the yearend estimates of unit stocks, survival rates are applied

to previous purchases of new cars (both domestically produced and imports) for use in the United States, and the numbers of surviving cars of each year's vintage are summed.

The number of new car purchases used in this article is based on information developed for the measurement of the auto component of the gross national product.¹ The year-to-year

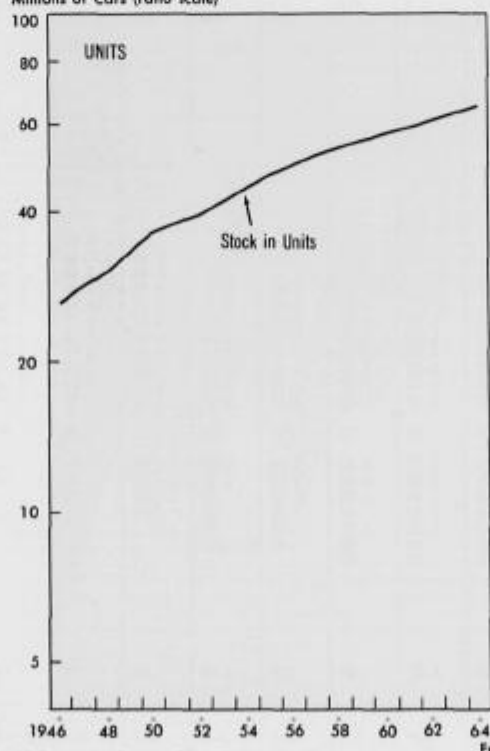
1. The unit purchases and, as noted below, their prices in current and constant dollars are completely consistent with the newly revised data on the auto gross product shown in table 16 in the SURVEY OF CURRENT BUSINESS, August 1965. The estimation of new car purchases is described in the appendix.

CHART 6

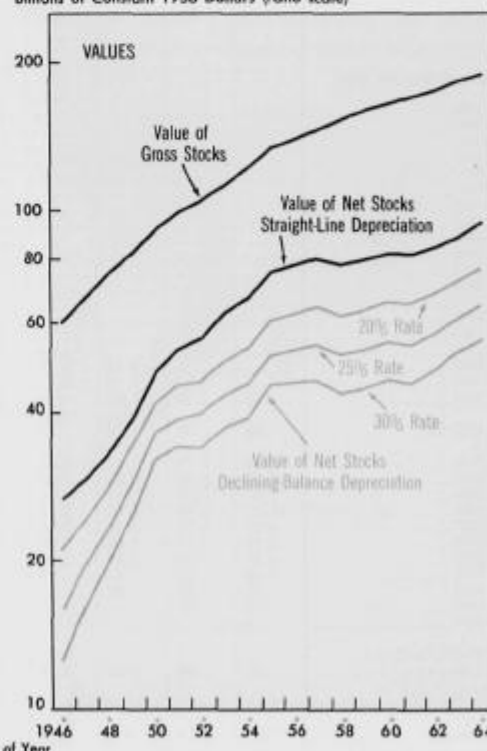
Stocks of Autos

- Growth of auto stocks slower from 1955 to 1964 than in earlier postwar period
- Plateau in net stocks, 1955-1961

Millions of Cars (ratio scale)



Billions of Constant 1958 Dollars (ratio scale)



U.S. Department of Commerce, Office of Business Economics

65-18-6

survival rates of cars of each model year were derived from R.L. Polk Company data on reregistrations.²

Trends in unit stocks

At the end of 1964, the auto stock totaled 66 million cars and was more than 2½ times the stock of 26 million cars at the end of 1946. The total number of cars in use has increased continuously since the end of World War II as new car purchases have exceeded scrappage each year.

Although the increase in the number of cars has been uninterrupted, the rate of growth has tended to decline over the postwar period. (See table 1 and chart 6.) From the end of 1946 to the end of 1950, the number of cars rose to 36 million, a growth rate of 8.5 percent per year. From 1950 through 1955, a banner year for new car sales, the average yearly rate of gain declined to about 6 percent. The growth rate fell to just under 4 percent in the 1955-60 period, and since 1960, it has fallen further to a rate somewhat above 3 percent.

Value Measures of the Auto Stock

Unlike the unit measures of the auto stock, the value measures presented here do not assume that all cars are the same. The values are adjusted to reflect the fact that passenger cars marketed in different years contain different mixtures of makes and of models within makes, and varying

amounts and types of extra equipment. In the value measures, units are weighted in proportion to their relative values.

As noted earlier, there are several alternative methods of valuing the stock so far as price level is concerned. First, cars in stock may be valued at original (historical) prices, a procedure generally used by business in the balance sheet reporting of fixed assets. This method adds together assets priced in dollars of different purchasing power. Secondly, valuation may be made in terms of prices prevailing in a selected base period to obtain a constant dollar measure of the stock. Thirdly, the stock may be valued in current dollars by adjustment for changes in the price level of new cars from the year of purchase to the year of stock taking. All of the above valuation methods can be presented on a gross or a net basis. An alternative current dollar measure, applicable only to net stocks, uses prices on the secondhand car market to value the stock.

Table 1.—Number of Cars in Use by Year Originally Sold, 1946-64 (Dec. 31)
(Millions of units)

	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Total.....	26.0	33.4	38.6	33.2	36.1	38.4	39.7	42.2	44.8	46.8	48.9	51.9	53.6	55.6	57.5	59.3	61.4	63.4	65.5
Not change.....		2.3	2.3	2.5	2.9	1.9	1.7	2.5	2.4	2.4	1.9	1.9	1.7	1.0	2.3	1.5	2.1	2.0	2.4
Scrappage.....		6.9	1.3	2.2	3.5	3.3	2.0	3.3	2.1	4.1	4.8	4.1	2.0	4.1	4.4	4.4	5.0	5.8	6.7
New sales.....		3.2	3.5	4.9	6.4	6.2	4.3	5.9	6.5	7.5	6.0	6.0	4.7	6.1	6.7	6.9	7.1	7.5	8.1
Year of original sale																			
1904.....																			8.11
1905.....																			7.66
1906.....																			7.42
1907.....																			7.05
1908.....																			6.88
1909.....																			6.51
1910.....																			6.58
1911.....																			6.99
1912.....																			4.70
1913.....																			4.22
1914.....																			2.46
1915.....																			1.89
1916.....																			1.02
1917.....																			.94
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1964.....																			.94
Earlier and not known.....																			.94
Mean age.....	8.6	8.5	8.2	7.5	6.5	6.0	5.5	5.4	5.3	4.8	4.6	4.4	4.2	4.4	4.4	4.6	5.5	6.4	6.4

Source: U.S. Department of Commerce, Office of Business Economics.

Table 2.—Gross Values of Automobile Stocks, 1946-64

[Billions of dollars]

Year	Original cost	Constant (1958) dollars	Current dollars
Dec. 31			
1946.....	26.6	59.5	35.8
1947.....	31.8	66.3	45.2
1948.....	37.8	73.3	54.6
1949.....	46.4	81.7	66.7
1950.....	57.2	91.0	74.8
1951.....	65.9	97.7	83.7
1952.....	74.0	103.7	92.4
1953.....	84.7	112.1	98.8
1954.....	94.6	120.3	104.7
1955.....	107.8	131.7	114.2
1956.....	116.6	138.4	126.2
1957.....	125.9	145.5	140.4
1958.....	133.3	150.9	150.9
1959.....	142.2	157.0	163.1
1960.....	151.5	163.5	167.8
1961.....	157.8	167.6	171.8
1962.....	160.9	174.2	178.4
1963.....	175.5	180.4	183.5
1964.....	185.0	188.0	191.0

Source: U.S. Department of Commerce, Office of Business Economics.

Calculation of stock values

All of the stock value series shown here are determined by multiplying the number of cars in each age group (shown in table 1) by the average unit values appropriate to the desired stock concept. There are three basic statistical series that yield all the appropriate average unit values. Two of them are applicable to both gross and net stock; the third is applicable to net stocks only.

The first series is the average unit cost to the final user of new cars (including installed extra equipment) purchased in the United States. This series, which is more fully described in the appendix, has been estimated for use in the auto product in order to translate the available data on retail dealers' unit sales of new autos into dollar values.

The second basic series, used in the auto product as a "deflator" of new car purchases, is an index of retail prices of new cars. This index is based in large part on the new car component of the Bureau of Labor Statistics' Consumer Price Index, which adjusts collected price quotations in an attempt to maintain a constant mix of cars and a reasonably constant equipment and quality content over time. In conjunction with the first series (average unit values of new cars), this index makes

possible the measurement of average unit values in constant dollars. When the average unit value of new cars for each year is divided by the price index (1958=100) for that year, the result is a unit value in 1958 dollars. This calculation makes appropriate allowances for changes through time in the mix of brands, models, optional equipment, and accessories. Since the price index is based on cars of fixed specifications, quality improvements that have increased the average unit values of cars are included in the valuation in 1958 dollars.³ Thus, quality changes that do not change costs to the user are not reflected in the constant dollar series.

The price index is also used in deriving the average unit values required for the measurement of the stock in current dollars.

3. A discussion of the techniques and problems in adjusting automobile price indexes for quality changes is presented in the *Monthly Labor Review*, May 1961, pp. 522-523. A critique of the BLS price index and an econometric analysis of the effects of quality changes on the automobile price index appeared in Staff Paper 3 of *Government Price Statistics* (Hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee, January 24, 1961).

The third basic series, whose derivation is described in the appendix, measures average unit values of cars of different ages on the used car market.

Gross and Net Stocks of Autos

The gross value of the passenger car stock assumes that there is no reduction in the value of cars through time as long as they remain in use. Gross stocks at the end of a given period are obtained by valuing each existing car at its undepreciated value.

The net stock estimates attempt to measure the economic value of the services remaining in the stock. This is done by making allowances, primarily through depreciation procedures, for wear and tear, which gradually exhaust the services embodied in the original purchase, as well as for obsolescence.

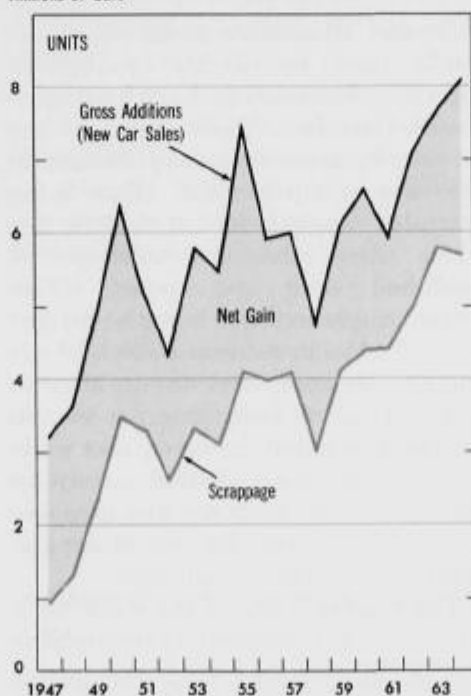
Alternative depreciation methods

There is no single method of depreciation which can be used to reflect the decline in the value of cars as they age. In this article, four methods,

Stock in Units Has Shown Continuous Postwar Gain

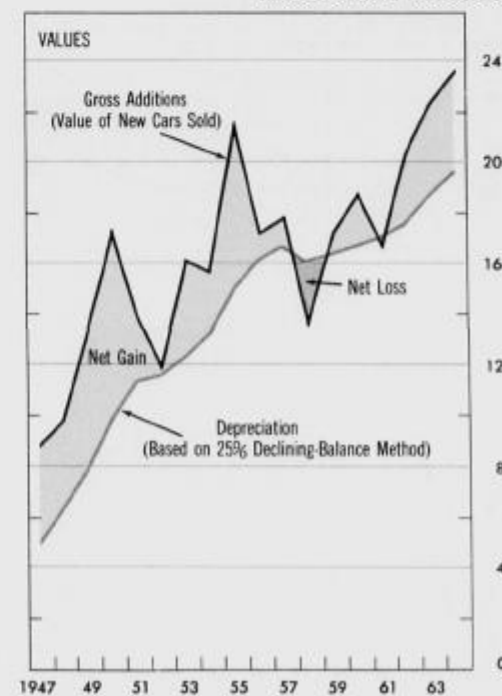
Net value of auto stock declined in 1958 and 1961

Millions of Cars



U.S. Department of Commerce, Office of Business Economics

Billions of Constant 1958 Dollars



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which probably cover the likely range of depreciation are used: straight-line depreciation and three variants of the declining-balance method. The straight-line method lowers the value of a car by a fixed number of dollars each year during its estimated average service life. The declining-balance method applies fixed annual percentages to the balance remaining at the start of each year. The straight-line method involves setting aside for depreciation of a given asset equal absolute amounts but increasing percentages of the value remaining at the beginning of each year. The declining-balance method employs a constant rate, which results in declining absolute amounts of depreciation.

The net stock estimates in this article were obtained by depreciating the average unit values (in both current and constant dollars) over the lives of cars of each year of original sale, multiplying these average values by the number of cars of the corresponding year in the stock, and adding the products for all years.

Average unit values depreciated by the straight-line method are reduced by 10 percent of the new car value in each successive yearly estimate, since the available data suggest that the average service lives of different model passenger cars in the postwar era have clustered around 10 years. The declining-balance estimates used here apply depreciation rates of 20 percent, 25 percent, and 30 percent to the average unit values at the beginning of each year. These rates are used because the behavior of prices in the secondhand car market suggests that the depreciation of the car stock is 20 percent to 30 percent. In each series, depreciation is halted when a car is about 98 percent depreciated; the remaining value (about \$50) is charged off when the car is withdrawn from the stock.⁴

The restrictions on automobile use during World War II created a special valuation problem in the development of net stock figures using the assumptions of depreciated cost. Because of the restrictions, most cars were driven at less than normal rates throughout the war years. To deal with this exceptional situation, it was arbitrarily assumed that during the years 1942 through 1945, cars depreciated at only one-half the annual rate used in other years.

Market value of auto stock

Several alternative measures of net stocks, based on varying assumptions regarding depreciation, have been mentioned thus far. These measures are necessarily approximate. However, in the case of automobiles, there is an extensive market for used cars, for which there exists a detailed set of published used car prices. These prices, which indicate how the market views the loss in value as a result of age and obsolescence, provides an alternative method of measuring net stocks. It should be noted, however, that while used car prices are affected mainly by the age of cars, they are also sensitive to such factors as changes in supply, demand, and credit conditions.

The market value of the stock for a given period is obtained by multiplying

Table 3.—Net Automobile Stocks in Constant Dollars by Method of Depreciation, 1946-64

(Billions of constant (1958) dollars)

Year	Straight-line method	Declining-balance method rate:		
		20%	25%	30%
Dec. 31				
1946.....	26.5	20.9	16.1	12.7
1947.....	28.9	24.3	19.6	15.2
1948.....	32.2	27.9	23.1	19.6
1949.....	38.4	33.6	28.5	24.8
1950.....	47.7	41.5	36.0	31.7
1951.....	53.0	45.0	38.8	33.9
1952.....	55.9	46.1	39.1	33.6
1953.....	62.4	50.6	43.0	37.0
1954.....	67.1	53.7	45.5	38.9
1955.....	75.4	61.0	52.1	45.1
1956.....	77.9	62.7	53.2	45.5
1957.....	80.2	64.5	54.4	46.4
1958.....	78.5	62.5	51.9	43.4
1959.....	79.6	63.9	52.9	44.5
1960.....	81.8	66.0	54.8	46.2
1961.....	81.6	65.8	54.4	45.6
1962.....	84.4	68.8	57.2	48.4
1963.....	88.8	73.0	61.2	52.2
1964.....	94.1	77.7	65.4	55.9

Source: U.S. Department of Commerce, Office of Business Economics.

the existing stock in each age class by its average unit value on the used car market at that time, and then summing the products.

Postwar Changes in Stock

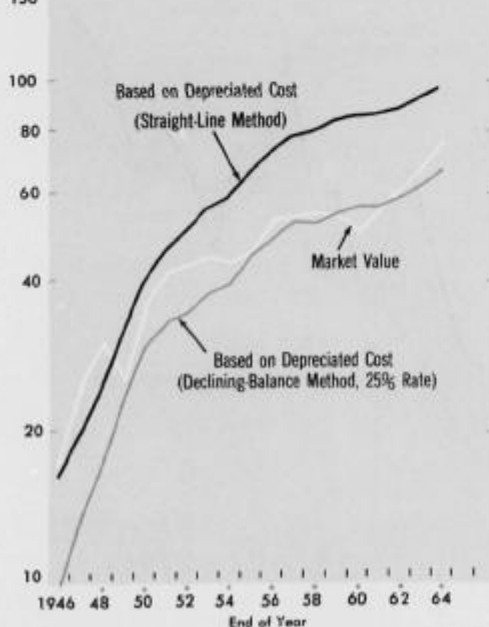
At the end of 1964, the gross value of the passenger car stock in constant (1958) dollars amounted to \$188 billion, more than three times the value in 1946. It will be recalled that stocks in units were 2½ times larger over the same period. The gross value of the car stock in constant dollars grew more rapidly than unit stocks because of increases in the average amount of equipment and accessories per car and those quality improvements that added to the value of cars. The effect of these factors was tempered by a growing proportion of generally smaller and relatively lower priced cars in the stock from the midfifties to 1964.

Although the real gross value of the stock rose without interruption during the postwar period, the rate of growth tended to decline, and the trend generally paralleled the trend of the stock measured in units. (See tables 1 and 2 and chart 6.) However, after 1955 the rate of growth in stocks declined more rapidly when measured by the real gross value than by units, as the proportion of lower priced imports and, starting in 1959, the proportion of

Net Stocks of Autos in Current Dollars

The market value of the automobile stock as measured by used car prices has fluctuated more than other net stock measures

Billions of Dollars (ratio scale)
150



U.S. Department of Commerce, Office of Business Economics

16-59-8

4. A small number of used car dealers, when asked, said that they rarely sold a car suitable for highway use for less than \$50.

domestically produced compacts in the stock rose. This development partly offset the trend toward larger amounts of equipment per unit. The rate of growth of the real gross value of the stock from 1955 to 1964 has been only 4 percent, in contrast to an average yearly growth rate of 8 percent from 1950 to 1955 and over 11 percent in the early postwar years.

The per capita gross value of cars in the stock in constant (1958) dollars was \$973 at the end of 1964, more than twice the 1946 figure of \$417. Most of the increase had taken place by 1955, when the average per capita gross value was \$790. Trends in per capita gross values were generally similar to trends in the number of cars per capita.

The gross value of the stock in current dollars grew considerably faster than the constant dollar value until 1959 and slightly slower from 1959 to 1964. The differences in the trends reflect an increase of more than 70 percent in the price of new cars in the first period and a price decline of about 2 percent in the second period.

Expansion of net auto stocks

The net stock of passenger cars in constant (1958) dollars totaled \$94 billion at the end of 1964 when computed on a straight-line depreciation basis, assuming an average service life of 10 years. The computations, based on the declining-balance method, yielded estimates of \$78 billion at a 20 percent rate per annum, \$86 billion at a 25 percent rate, and \$56 billion at a 30 percent rate. (See table 3 and chart 6.) These relative positions of the stock, measured by varying declining-balance rates, held throughout the postwar period.

Because of the abnormally low net value of the stock at the end of World War II, caused partly by the very high proportion of older cars in the stock all constant dollar net stock values for the whole postwar period expanded more than the stock in either units or constant dollar gross values. It should be borne in mind that net stock values are significantly affected by the age composition of the stock while constant dollar gross stock and the stock in units are not.

Table 4.—Net Changes in the Value of Automobile Stocks, Value of New Car Sales and Depreciation, 1947-64

Year	Net change in			Value of new car sales	Depreciation ¹	
	Gross stock	Net stock depreciation			Straight-line	Declining-balance 20%
		Straight-line	Declining-balance 20%			
1947	8.8	2.4	3.6	8.8	0.4	5.3
1948	7.9	3.2	3.6	9.8	0.5	6.3
1949	8.4	6.2	8.4	13.2	7.0	7.8
1950	9.2	9.3	7.6	17.2	7.9	9.7
1951	6.7	5.8	2.8	14.0	8.7	11.3
1952	6.0	2.9	3	11.9	9.0	11.6
1953	6.4	0.5	3.9	18.2	9.7	12.3
1954	9.2	4.7	2.6	15.7	11.0	13.2
1955	11.4	6.3	6.6	21.6	13.3	15.0
1956	6.7	2.5	1.1	17.2	14.7	16.1
1957	7.1	2.3	1.3	17.9	15.5	16.7
1958	8.4	-1.7	-2.5	13.4	15.1	15.0
1959	0.1	1.1	1.0	17.8	18.2	19.3
1960	0.6	2.2	1.9	18.4	18.2	19.5
1961	4.1	-2	-4	16.4	18.6	20.8
1962	0.0	2.8	2.8	20.2	17.4	17.4
1963	6.2	4.4	4.0	22.5	18.1	18.5
1964	7.0	5.8	4.2	23.7	18.4	19.3

¹ Written off caused by scrapage on accidents included.

Source: U.S. Department of Commerce, Office of Business Economics.

Real net stocks also grew more unevenly than either stocks in units or real gross stocks. (See table 3 and chart 8.) From 1950 to 1955, the expansion of stocks measured on a net basis slowed much more than the growth of stocks measured in units or on a gross basis, and in the following 8 years, net stock values fluctuated without any apparent trend. Net stocks gained more than gross or unit stocks after the 1961 recession as new car purchases rose substantially.

The value of new car purchases during the 1958 and 1961 recessions (see table 4) was generally less than the reductions in the net values of the stock due to depreciation and scrapage, so that net stock values declined in these 2 years. (See chart 7.) As noted earlier, the number of new cars sold in these and other postwar years exceeded the number scrapped.

The differences in trends between real values and current values caused by changes in the price level of new automobiles have been noted in the discussion of gross stock trends. As with gross stocks, the growth of net stocks was substantially greater in current values than in real values before 1959 and somewhat slower thereafter.

Net stocks based on used car prices

The market value of the automobile stock, about \$77 billion at the end of 1964, was close to the current dollar

value based on a declining-balance depreciation of 20 percent, but for other years, these two estimates were not so close. In contrast to the rather smooth trend of stocks based on depreciated cost, the generally upward trend of the used car market value of the stock has often been interrupted by plateaus and declines. (See table 5 and chart 8.) The irregularity in movement has reflected, primarily, fluctuations in used car prices. Used car prices, moreover, have frequently moved contracyclically. They have usually declined while new

Table 5.—Net Automobile Stocks in Current Dollars, 1946-64
(Billions of dollars)

Year	Depreciation cost basis				Market value
	Straight-line method	Declining-balance rates			
		20%	25%	30%	
Dec. 31					
1946	15.9	12.6	9.7	7.6	17.4
1947	18.7	15.8	13.4	11.0	20.6
1948	24.0	20.8	17.2	14.0	26.4
1949	31.3	27.4	23.3	20.2	28.5
1950	39.2	34.1	29.6	26.1	35.0
1951	45.4	38.6	33.3	29.1	41.7
1952	49.3	41.1	34.8	29.9	43.5
1953	55.0	44.6	37.9	32.6	44.5
1954	58.4	46.7	39.6	33.8	43.8
1955	66.4	52.9	45.2	39.1	40.4
1956	71.0	57.2	49.5	41.6	33.5
1957	77.4	62.2	52.5	44.6	33.7
1958	78.6	62.6	51.9	43.4	35.0
1959	82.7	66.4	55.0	46.2	34.2
1960	83.9	67.7	56.2	47.4	35.6
1961	85.0	67.4	55.8	46.7	35.8
1962	86.4	70.5	58.5	49.0	31.2
1963	90.5	74.2	61.9	53.1	37.9
1964	96.6	79.0	64.4	55.8	76.8

Source: U.S. Department of Commerce, Office of Business Economics.

Average Annual Rate of Growth in Stocks of Passenger Cars
[Percent]

	Stock in units	Constant (1958) dollars			Current dollars			
		Gross stock	Net stock		Gross stock	Net stock		
			Straight-line	Declining balance (25 percent)		Straight-line	Declining balance (25 percent)	Market value
1946-64	5.3	6.6	7.3	8.1	9.7	10.5	11.3	8.6
Subperiods								
1946-50	8.5	11.2	15.8	22.0	20.0	25.0	32.0	19.6
1950-55	5.8	7.7	9.6	7.7	8.8	10.8	8.8	5.4
1955-60	3.8	4.4	1.6	1.0	8.0	5.1	4.4	1.8
1960-64	3.3	3.6	3.6	4.5	3.3	3.3	4.3	11.0

car sales have risen, because new car sales ordinarily provide dealers with a supply of used cars from trade-ins.

In 1958 and 1961, for example, new car sales were abnormally low, and the value of net stocks, based on depreciated cost, generally fell as depreciation exceeded additions to stock. In contrast, the market value of the stock rose in both years because used car prices increased. Divergent movements also occurred in 1949 and 1960, when used car prices and the market value of the stock declined while new car sales and net stock measured by depreciated cost rose.

Since 1961, used car prices have risen despite large sales of new cars. This price rise has contributed significantly to the substantial increases in the market value of the stock.

The above table summarizes average annual rates of growth in the various

measures of auto stocks for the entire postwar period and selected subperiods.

Ratios of net to gross stocks and mean age of stock

The relative trends in the real net and gross values of the stock are made clearer by examining changes in the ratios of net to gross stocks over time. The ratios reflect the extent to which future services purchased by the original expenditures remain intact, assuming that the depreciation is a reliable indication of the value of services consumed and the purchase price an adequate measure of the services originally bought.⁵

The ratios at the end of 1964 were 0.50 for the stocks depreciated on a straight-line basis, and 0.41, 0.35, and 0.30 for the three variants of declining-balance depreciation (20 percent, 25 percent, and 30 percent respectively). Identical ratios are found whether the data are examined in constant or in current prices since a single series of price indexes was used to adjust the current stock values to constant dollar values.

The net to gross ratios were abnormally low at the end of World War II. (See chart 9.) The rapid growth in the ratios in the early postwar years was the result of the substantial addition of cars with a high proportion of undepreciated value to the stock. Most ratios came close to their maximum values by the end of 1950. From 1950 to 1955, the ratio of the straight-line depreciated stocks increased further (from 0.52 to 0.57), while the ratios for the other stock series first declined and

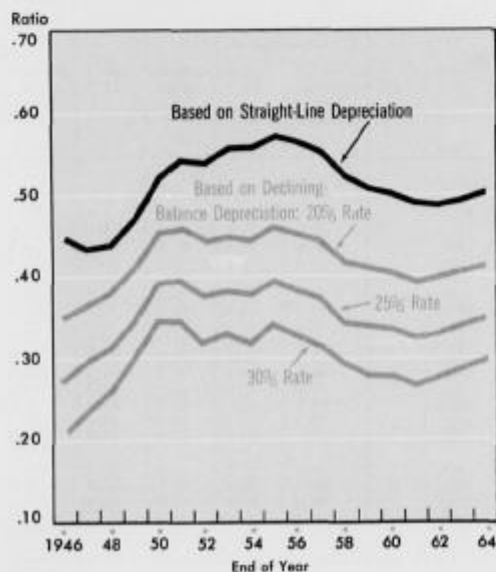
then recovered to 1950 levels. After 1955, all ratios declined until 1961 as the gross stock increased while the net stocks did not. This differential movement in the two stock measures came about because the moderate growth in the number of cars in stock, while increasing the gross stock, was only sufficient to offset depreciation charges applicable to net stocks. The ratios moved upward after 1961 as new car sales increased appreciably.

The mean age of cars is an alternative measure pertaining to the age distribution of the stock. At the end of 1964, the mean age was about 5½ years, only slightly lower than in 1961 and much higher than the 4.8 years in 1955, a postwar low. For the postwar period, the mean age was highest in 1946—almost 9 years—and in 1950, the mean age was more than 6 years. (See chart 10.)

Trends of the stock of late model cars

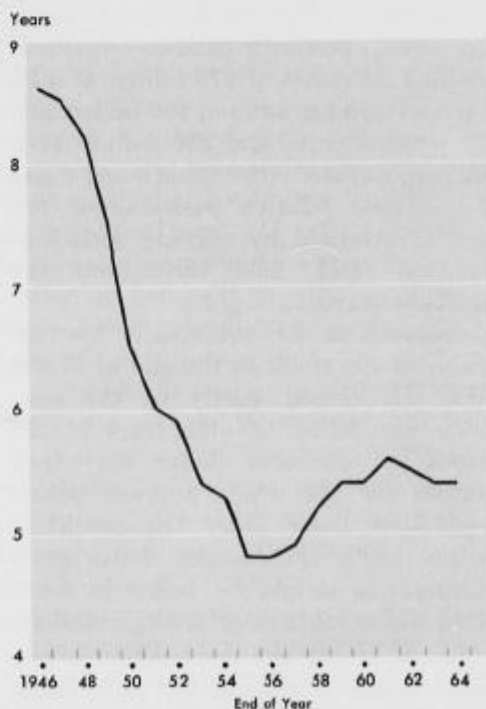
The proportion of the stock accounted for by younger cars may also serve as an indicator of the relative "newness" of the automobile stock. The proportions of these late model cars, whether measured as cars less than 2, 3, or 4 years old, to the total stock declined through the fifties, except for a short-lived

CHART 9
Ratios of Net to Gross Auto Stocks



5. See "Expansion of Fixed Business Capital in the United States," November 1962 SURVEY, pages 17-18, for an expanded discussion of the analytical uses of these measures.

CHART 10
Average (Mean) Age of Cars in Stock



upturn in the midfifties attributable to the record sales of new cars in 1955. The low point was reached in 1961. Since then, the proportion of late model cars has increased substantially and has contributed to the moderate increase noted earlier in the net to gross ratios and to the slight decline in average age.

The relative importance of the late model stocks varies with the stock concept involved. Cars less than 2 years old usually account for 20 to 25 percent, and cars less than 4 years old for 40 to 50 percent, of the stock in units or of gross stocks in constant dollars. In the case of the net stock values (derived by a 25 percent declining-balance depreciation), cars less than 2 years old represent more than half of the stock, and cars less than 4 years old make up about four-fifths.

Although total stocks have exhibited fairly smooth trends, stocks of recent models have fluctuated considerably. (See table 6.) Since these series are essentially 2-, 3-, and 4-year moving

totals of sales, the expansions and contractions are largest when only cars less than 2 years old are included.

Appendix

Number of cars entering the stock

In this article, the number of new car purchases was estimated on the basis of information built up in the national income and product accounts. Since 1951, sales of new domestically produced cars have been based on sales of franchised dealers as regularly reported in trade journals. Prior to 1951, new passenger car registrations compiled by the R. L. Polk Company were used, with a small upward adjustment for the estimated difference between registrations and dealers' sales as suggested by overlapping data. The number of imported cars sold was based on registration data compiled by the R. L. Polk Company.

Number of surviving cars

The year-to-year survival rates of each model year car were derived mainly from the R. L. Polk Company data on registrations. Because of some inconsistencies in the data, the following scrapage rates were assumed for cars less than 4 years old: no scrapage for cars less than 1 year old, scrapage of one-half of 1 percent each year for cars 1 to 3 years old and 3 to 3 years old, and 1 percent for cars 3 to 4 years old. The year-to-year survival rates for older cars follow the pattern of the R. L. Polk data. As the R. L. Polk registration data for 1964 are not yet available, the average survival experience of the previous 4 years was utilized in the stock estimate for that year.

Average unit values of new cars

The derivation of average unit values of domestically produced and imported new cars in current dollars used in this article is the same as the one described in the technical note of the article "Automobile Output in the Postwar Period," *SURVEY OF CURRENT BUSINESS*, February 1963, except that actual prices paid rather than list prices are used

for 1952, 1953, and 1954. Constant dollar values of domestic new cars were obtained through deflation of the average unit value by the new passenger car component of the Consumer Price Index. Adjustments were made for the 1944-45 period in order to include prices of preceding model year cars sold after the introduction of new models. Since 1955, this adjustment has been incorporated into the Consumer Price Index.

Since the HLS index prices only popular standard-size and compact cars, the constant dollar estimates in this article are distorted to the extent that price movements of the selected models vary from those of all domestic cars.

Real values of imported cars

The average unit values of imported new cars for the 1951-63 period were deflated by a newly prepared index, since other deflators currently available either were based only on Volkswagen prices or did not adequately eliminate price changes caused by variation in the mix of imported cars.

The newly prepared index is based on the post-entry prices of representative models of the six best-selling imported cars. When the price of a given model was increased, the increase was acknowledged only if it was not likely to have been caused by improvements in quality or equipment. Prior to 1951, when the volume of imported cars was negligible, the price index of imports was assumed to move with the index of domestic new car prices.

Calculation of used car market value

The market value estimate of the stock utilizes data that measure year-to-year declines of prices (based on National Automobile Dealers Used Car Guides) of representative models of fixed specifications within most makes. About 30 representative models were used to determine the average used car prices in the 1950's; somewhat fewer models were used in the earlier years. Prices of cars older than those covered in the used car guides were estimated on the basis of the trend at the time of the reports. Year-to-year price changes of individual models were weighted according to the share their make had in the new car market. The resulting weighted average change was applied in the same way as depreciation rates to the average unit values of cars.

Table 6.—Late Model Stocks in Units and Values and Ratio of Late Model to Total Stocks, 1948-64

(Units in millions; values in billions of constant (1958) dollars)

Late model stock	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Less than 2 years old																	
Units.....	6.7	8.4	11.3	11.5	9.4	10.0	11.3	12.9	13.4	11.9	10.0	10.7	12.7	12.6	13.0	14.8	15.8
Gross value.....	28.5	22.0	30.2	31.2	24.0	28.0	31.8	37.2	38.4	35.0	31.2	30.7	34.8	34.7	35.5	42.8	45.1
Net value.....																	
Straight-line depreciation.....	15.7	20.8	27.5	27.9	23.2	24.5	28.0	33.8	34.0	31.5	27.0	27.9	32.1	31.2	33.1	38.4	41.5
Declining-balance depreciation 25%.....	14.3	17.0	23.7	23.6	19.4	22.0	24.3	29.1	29.1	26.9	23.4	23.9	27.4	26.4	28.4	32.9	35.4
Less than 3 years old																	
Units.....	8.5	11.6	14.9	16.4	14.7	15.2	15.5	18.7	18.8	19.3	18.5	19.7	17.3	18.6	19.0	20.7	22.5
Gross value.....	23.4	31.0	40.0	44.2	42.9	41.9	43.6	52.2	54.2	55.4	49.2	48.4	48.9	51.0	54.5	58.5	64.1
Net value.....																	
Straight-line depreciation.....	20.4	27.3	34.8	37.7	36.9	35.9	37.5	45.8	46.2	47.0	40.0	41.1	42.1	44.0	46.8	49.6	54.5
Declining-balance depreciation 25%.....	10.7	22.3	28.4	29.9	28.0	28.8	30.1	37.0	36.8	37.4	31.8	32.8	34.0	34.3	37.4	40.9	45.7
Less than 4 years old																	
Units.....	13.4	17.9	19.8	20.8	21.4	20.8	22.9	26.5	26.7	28.8	23.8	22.5	23.2	23.2	25.8	27.3	28.8
Gross value.....	38.5	48.8	53.8	55.8	55.8	57.4	64.9	70.1	71.8	71.8	60.4	55.2	56.5	55.0	71.7	76.9	83.3
Net value.....																	
Straight-line depreciation.....	30.3	40.3	43.9	44.8	45.8	46.4	53.4	58.0	57.8	54.4	44.4	42.0	43.5	42.5	57.8	62.4	67.0
Declining-balance depreciation 25%.....	24.0	31.0	33.5	32.7	35.0	35.2	41.3	42.0	42.1	39.4	30.4	30.8	30.4	30.7	44.6	47.5	51.2
Late model stock as percent of total stock																	
Less than 2 years old																	
Units.....	31.9	25.3	31.3	29.3	23.7	23.7	25.3	25.9	30.9	23.0	19.3	18.3	22.0	21.2	21.2	23.3	24.0
Gross value.....	24.2	28.0	33.3	31.9	25.0	28.0	29.4	28.2	27.9	24.1	20.7	19.0	21.3	20.7	21.0	23.8	24.5
Net value.....																	
Straight-line depreciation.....	61.9	54.3	67.7	62.7	61.5	60.9	62.6	64.8	64.4	60.3	55.5	54.9	59.2	58.2	59.2	63.2	64.1
Declining-balance depreciation 25%.....	61.9	62.3	68.8	69.6	60.1	61.2	63.4	64.9	64.7	60.4	48.1	48.2	50.9	49.5	49.7	53.8	54.1
Less than 3 years old																	
Units.....	37.8	34.9	41.0	43.2	39.5	39.0	34.8	39.0	37.7	37.3	30.8	30.1	29.9	31.4	31.0	32.6	34.7
Gross value.....	31.9	38.7	44.0	45.2	41.4	37.4	36.2	46.5	39.2	39.8	31.9	30.8	29.9	31.0	31.4	32.6	35.2
Net value.....																	
Straight-line depreciation.....	63.4	53.1	73.6	71.2	64.2	57.5	55.9	60.7	50.3	50.4	51.7	51.8	51.5	52.9	55.8	57.0	60.0
Declining-balance depreciation 25%.....	72.3	77.8	78.9	77.1	71.6	67.0	60.2	71.0	60.2	68.7	61.3	61.0	62.0	64.0	65.4	66.8	69.3
Less than 4 years old																	
Units.....	40.4	48.8	52.1	51.6	48.7	48.2	47.7	48.1	47.7	44.5	40.5	40.1	40.1	39.1	41.7	42.9	43.6
Gross value.....	44.7	53.4	58.1	55.8	52.5	47.7	48.3	56.7	49.3	46.0	41.5	40.7	40.7	38.8	41.2	42.6	45.7
Net value.....																	
Straight-line depreciation.....	79.4	64.3	82.9	79.2	75.0	69.2	70.8	72.7	71.8	68.3	65.3	65.4	64.2	64.2	68.5	70.3	71.2
Declining-balance depreciation 25%.....	84.2	87.6	88.3	83.6	81.4	77.4	78.3	80.1	79.2	70.2	73.3	73.7	72.9	76.2	77.6	78.3	78.3

Source: U.S. Department of Commerce, Office of Business Economics.